

# PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

**PCT**

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner  
US Department of Commerce  
United States Patent and Trademark  
Office, PCT  
2011 South Clark Place Room  
CP2/5C24  
Arlington, VA 22202  
ETATS-UNIS D'AMERIQUE  
in its capacity as elected Office

<b>Date of mailing (day/month/year)</b> 23 February 2001 (23.02.01)	
<b>International application No.</b> PCT/US00/00992	<b>Applicant's or agent's file reference</b> GJH0006
<b>International filing date (day/month/year)</b> 14 January 2000 (14.01.00)	<b>Priority date (day/month/year)</b> 15 January 1999 (15.01.99)
<b>Applicant</b> RILEY, Kenneth, Lloyd et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
14 August 2000 (14.08.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was  
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<b>The International Bureau of WIPO</b> 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	<b>Authorized officer</b> Antonia Muller Telephone No.: (41-22) 338.83.38
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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/00992

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : C10G 47/02, 47/24, 47/04, 11/00, 11/02, 11/04

US CL : 208/108, 112, 113, 121, 123, 124

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 208/108, 112, 113, 121, 123, 124

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONEElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
NONE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4,808,563 A (VELENYI) 28 February 1989, col. 3, line 16 to col. 4, line 63.	2-6, 9-12
Y	US 4,014,925 A (FERLAZZO et al) 29 March 1977, col. 1, line 60 to col. 4, line 14.	2-6, 9-12
Y	US 5,112,472 A (GOSSELINK et al) 12 May 1992, col. 1, line 45 to col. 6, line 9.	1-12

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*E* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A* document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

26 MARCH 2000

Date of mailing of the international search report

18 APR 2000

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

MARK BELL

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PARALEGAL SPECIALIST

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 22 MAR 2001

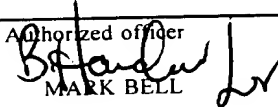
Applicant's or agent's file reference GJH0006	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/00992	International filing date (day/month/year) 14 JANUARY 2000	Priority date (day/month/year) 15 JANUARY 1999
International Patent Classification (IPC) or national classification and IPC Please See Supplemental Sheet.		
Applicant EXXONMOBIL RESEARCH AND ENGINEERING CO.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 0 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  14 AUGUST 2000	Date of completion of this report  08 FEBRUARY 2001
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer  MARK BELL
Facsimile No. (703) 305-3230	Telephone No. (703) 308-0661

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/00992

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

☒ the international application as originally filed☒ the description:

pages 1-38, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of

☒ the claims:

pages 39-40, as originally filed

pages NONE, as amended (together with any statement) under Article 19

pages NONE, filed with the demand

pages NONE, filed with the letter of

☒ the drawings:

pages 1-2, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of

☒ the sequence listing part of the description:

pages NONE, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.  
These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).☐ the language of publication of the international application (under Rule 48.3(b)).☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in printed form.☐ filed together with the international application in computer readable form.☐ furnished subsequently to this Authority in written form.☐ furnished subsequently to this Authority in computer readable form.☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. ☒ The amendments have resulted in the cancellation of:☒ the description, pages NONE☒ the claims, Nos. NONE☒ the drawings, sheets/fig NONE5. ☐ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\*Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/00992

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. statement

Novelty (N)

Claims 1-12 YES  
Claims NONE NO

Inventive Step (IS)

Claims 1-12 YES  
Claims NONE NO

Industrial Applicability (IA)

Claims 1-12 YES  
Claims NONE NO

### 2. citations and explanations (Rule 70.7)

Claims 1-12 meet the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest the claimed process for producing a hydrocrackate, wherein a feedstream is passed through two or more catalyst beds, and the catalyst comprises a bulk multimetallic catalyst comprised of at least one Group VIII non-noble metal (selected from Ni and Co) and at least two Group VIB noble metals (selected from Mo and W).

Velenyi teaches a molybdenum-tungsten catalyst complex. Although the complex of Velenyi can contain Mo, W, Ni, and Co, the catalyst contains additional metals and is employed in a process for converting methane and oxygen to higher order hydrocarbons.

Ferlazzo et al. teach a catalyst that may contain Mo, W, Co, and Ni, but not in the proportions of the bulk multimetallic catalyst. Also, the catalyst of Ferlazzo et al. is employed in a process for the production of methyl acrylate or a mixture of methyl acrylate and acrylic acid from a gaseous mixture comprising acrolein.

The claimed process has Industrial Applicability in the art of hydrocarbon processing.

For the above reasons, claims 1-12 meet the criteria set out in PCT Article 33(2)-(4).

----- NEW CITATIONS -----  
NONE

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/00992

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Sheet 10

Continuation of: Boxes I - VIII

**CLASSIFICATION:**

The International Patent Classification (IPC) and/or the National classification are as listed below:  
IPC(7): C10G 47/02, 47/24, 47/04, 11/00, 11/02, 11/04 and US Cl.: 208/108, 112, 113, 121, 123, 124

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
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Patentamt

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Recherchen-  
abteilung

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Patent Office

Branch at  
The Hague  
Search  
division

Office européen  
des brevets

Département à  
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RECEIVED IN MACHELEN

10 FEB 2003

IP LAW

RECEIVED  
MAR 13 2003  
TC 1700

Datum/Date

11.02.03

Zeichen/Ref./Réf. <b>P1997J057L</b>	Anmeldung Nr./Application No./Demande n°/Patent Nr./Patent No./Brevet n°. <b>00908284.3-2103-US0000992</b>
Anmelder/Applicant/Demandeur/Patentinhaber/Propriétaire/Titulaire <b>ExxonMobil Research and Engineering Company</b>	

## COMMUNICATION

The European Patent Office herewith transmits as an enclosure the European search report for the above-mentioned European patent application.

If applicable, copies of the documents cited in the European search report are attached.

☐ Additional set(s) of copies of the documents cited in the European search report is (are) enclosed as well.

PC MASTER . UPDATED

10 FEB 2003

N. CALLENS

## REFUND OF THE SEARCH FEE

If applicable under Article 10 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.







European Patent  
Office

SUPPLEMENTARY  
EUROPEAN SEARCH REPORT

Application Number  
EP 00 90 8284

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Y	DATABASE WPI Section Ch, Week 199940 Derwent Publications Ltd., London, GB; Class H04, AN 1999-469695 XP002205583 & CN 1 218 088 A (CHINA PETROCHEMICAL GEN CO), 2 June 1999 (1999-06-02) * abstract *	1-12	C10G47/02 C10G47/24 C10G47/04 C10G11/00 C10G11/02 C10G11/04
Y	EP 0 244 106 A (UNION OIL CO) 4 November 1987 (1987-11-04) * claim 1 *	1-12	
Y	EP 0 183 353 A (EXXON RESEARCH ENGINEERING CO) 4 June 1986 (1986-06-04) * claim 1 *	1-12	
Y	PATENT ABSTRACTS OF JAPAN vol. 1997, no. 05, 30 May 1997 (1997-05-30) & JP 09 000929 A (SEKIYU SANGYO KASSEIKA CENTER; COSMO OIL CO LTD), 7 January 1997 (1997-01-07) * abstract *	1-12	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			C10G B01J
The supplementary search report has been based on the last set of claims valid and available at the start of the search.			
Place of search MUNICH		Date of completion of the search 31 January 2003	Examiner Janus, S
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 90 8284

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

31-01-2003

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
CN 1218088	A	02-06-1999	NONE		
EP 0244106	A	04-11-1987	US	4686030 A	11-08-1987
			AT	58070 T	15-11-1990
			CA	1270785 A1	26-06-1990
			DE	3765990 D1	13-12-1990
			EP	0244106 A1	04-11-1987
			JP	62199687 A	03-09-1987
			JP	62260888 A	13-11-1987
EP 0183353	A	04-06-1986	US	4591429 A	27-05-1986
			CA	1251772 A1	28-03-1989
			DE	3569340 D1	18-05-1989
			EP	0183353 A1	04-06-1986
			JP	61086949 A	02-05-1986
JP 09000929	A	07-01-1997	NONE		